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NPIC/TSQ/RED-205-70
9 September 1970

MEMORANDUM FOR: Chief, Production Services Group, NPIC
THROUGH : Chief, Technical Services Group, NPIC
SUBJECT : ADP and Materials Handling Requirements
REFERENCE : Dated 18 March 1970

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I. In response to the referenced paper, which furnished background information relating to your information and materials handling needs, TSQ/RED has made a preliminary analysis of the situation. As a result of evaluating the referenced paper, a series of discussions with supervisory personnel in each of the R&RD Branches, and our own understanding of the information needs the Center, the following discussion represents our understanding of the current situation within R&RD/PSG and what action we propose. Specifically, our objective is twofold; (1) To improve the timeliness and effectiveness of inputting, updating, storing, retrieving, and handling non-magnetically stored information, (2) to make cost effective use of automation and ADP services while holding manpower, funding, and space requirements within available resources.

A. Forms of Information To Be Considered--Because of their interrelationships, we feel that all of the types of information (or materials) addressed below must be considered for an effective analysis of the problem. Additionally, other information handling processes, such as the IIS, must be reviewed to eliminate potential overlaps, but are not addressed as a direct part of the approach described herein.

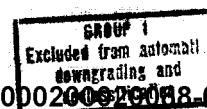
1. Ground Coverage Photography.

a. Roll--Those forms of mission coverage photography normally stored and handled in roll form.

b. Frame/chip--a single frame or less of mission photography extracted from a roll for handling purposes.

c. Ground--a single or small series of frames of photography obtained from hand-held cameras as opposed to reconnaissance mission coverage.

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2. **Microform Film**--Photographically recorded information used for information handling as opposed to intelligence acquisition photography.

3. **Classified Documents, Reports, Cables**--a variety of formal and informal publications requiring special handling.

- a. Top Secret Codeword Publications
- b. Cables and Informals
- c. Non-Codeword Publications

4. **Unclassified Publications**

- a. Books
- b. Periodicals
- c. Reports

5. **Large Format Materials**

- a. Ground Coverage Plots
- b. Maps & Charts
- c. Graphics & Briefing Boards

6. **Mission Data**--that data which is not computer or magnetically stored for a near real time availability.

- a. Target Data
- b. Ephemeris Data

B. Current Situation--It is our understanding from the reference memo that considering past requirements and constraints, R&RD has been able to meet their commitments. Concern is expressed, however, as to their ability to meet future commitments [redacted] without establishing more efficient operating procedures based on a revised requirements base. The following are a few comments characterizing the current situation. Inclusion of comments herein is not necessarily an endorsement that significant changes are required.

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1. **Manual Orientation**--Automation and ADP support has been applied at a minimal level, even in highly repetitive functions.

2. **Collection of Autonomous but Similar Operations**--Many of the operations within R&RD are similar "library" or "accountability" functions but each has its own control system.

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3. **Registry an Incomplete Function--**Considerable effort devoted to registering certain classes of classified information, while little or no effort is devoted to controlling reproduction, transfer of responsibility, or destruction.

4. **Production and Use of Microforms and Incomplete Function--**NSA is presently implementing a new totally manual microform system (as a replacement for the Minicard System) based on the external dimensions of a standard 4" x 6" microfiche, but without the internal format control of the Government Standard Microfiche. Additionally, the Information Branch is ordering, when ever possible, Government standard microfiche in lieu of hard copy. The indexing, storage, and retrieval, dissemination, reproduction and general overall use of these and other types of microforms in use within the building is poorly defined and frequently misunderstood by the Center as a whole. In brief, the requirements for Microforms are not clear and/or evident but we are pursuing their use on an ad-hoc basis.

5. **Little Coordination of Microform Equipment Procurement--**At this time there does not seem to be any coordinated effort for the procurement of optimal microform viewing, printing, or reproduction equipment within the Center. Each Division or Group appears to be striking out on their own as to what type of equipment to buy.

6. **Little Room Available for Expansion Brought on by New Systems or Requirements--**NSA, like much of the remainder of the building is feeling the space squeeze. While they currently have adequate space, expanded storage requirements will be difficult to handle.

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C. **Major Requirements--**Based on an analysis of the referenced paper and our additional preliminary investigations, we feel we can summarize the stated NSA needs into the following ten requirements categories for further consideration.

1. Automated Film Accountability System
2. Automated Registry (Accountability) System
3. Improved Library & Reference System
4. Improved Film Coverage, Index & Search Capability
5. Integrated Microfilm System

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6. Improved Target File Maintenance & Handling
7. Improved Film Handling
8. Improved Map Handling
9. Improved Reference Material Handling
10. Improved "Mail" Handling

D. Major Functional Areas--All of above ten requirements fall within three functional fields or areas of specialization. Each of the branches or operations within R&D are affected to varying extents by these functional areas, however, each unit has responded somewhat differently accounting for a variety of approaches to similar problems. These functional areas are:

1. **Reference, Index & Search**--a problem of knowing the content of your inventory and how to locate or index it in an efficient manner.
2. **Record & Material Accountability**--primarily an inventory control situation.
3. **Materials Storage, Retrieval, and Handling**--the physical storage and handling problem of your inventory.

E. Major Considerations--At this time we have been unable to analyze and validate specific problem areas or requirements where we can recommend specific R&D developmental programs. There are several areas where Ad-Hoc solutions are possible, however, without the necessary considerations and planning they may be ineffective in the long run. This is not to say that there are no problem areas in R&D or that these operations can not be effectively improved through R&D, but only that we were not able to adequately identify and define them to recommend developmental action. Some of the major considerations that must be studied in depth in arriving at either developmental or new operational concept plans are as follows:

1. **Need and Use of Information**--To what extent are the current information and handling services of R&D being used and what information needs may exist that are not being satisfied.
2. **Extent of Automation**--The need for expanded automation or ADP support must be explicit.
3. **Automation Costs versus Benefits**--Before applying Automation or ADP support, we must be sure that it will be cost effective, from both the dollar or manpower expenditure.

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4. **Best Handling Media**--Which storage and handling media is most effective for a given operation; i.e., hard copy, microfilm, computer storage (either real time or batch), etc.

5. **Equipment Improvements**--what functions or services can be improved through improvements in equipment or addition of new types of equipment.

6. **Procedural & Technique Improvements**--what functions or services can be improved through technique and procedural changes.

II. There are three basic alternative approaches to providing R&D support in response to the referenced memorandum.

A. **Ad-Hoc Improvements**--selecting a few of the most critical problem areas and implementing individual correction plans.

1. **Advantages**

- a. Quickest Response
- b. Lowest Cost
- c. Low Risk
- d. Will Require Fewest Changes

2. **Disadvantages**

- a. Current Problem Areas May Change
- b. Low Pay-Off in Terms of Future
- c. Minimal Efficiency Improvements
- d. No Provision for Future Improvements

B. **Integrated System**--studying and establishing requirements followed by the development of a long range plan for the instrumentation and operation of R&D.

1. **Advantages**

- a. Will provide for long range improvements
- b. Potentially high long term efficiency

2. **Disadvantages**

- a. Results will not be available for several years
- b. Short term approaches will not be fully integrated
- c. Potentially high long range cost

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C. Hybrid System--Development of a long range plan based on a firm estimate of future requirements, while addressing current problems on a quick fix basis, as an integrated approach.

1. Advantages

- a. Long Range Program with Quick-Fix Emphasis
- b. Modular Approach
- c. Highest Long Term Efficiency

2. Disadvantages

- a. Potentially high long range cost

III. It is recommended that we adopt the hybrid system approach, by conducting a contractual study program to determine cost effective improvements that can be made in the currently non-computerized information handling processes within NFIC, and to develop a modular plan for improving the information handling and control processes within current and projected manpower and cost constraints.

IV. Program control of the above recommended project would be maintained via the appointment of a R&D technical program manager who would maintain working level coordination and liaison with R&D and other affected components, while maintaining technical supervision and monitoring of the selected contractor. The contract proposal solicitations and selection will be based on detailed program objectives and proposal evaluations performed in conjunction with PSB designated personnel. Contractor selection for solicitation of proposals will be based on experience in the fields of Library and Information Sciences. It is anticipated that the project will be conducted as a two phase project taking approximately 15 months to complete. The first phase will address the requirements definition and near term solutions while the second phase will be the development of the long range plan.

V. Your support and concurrence in the above recommendation is essential in achieving an effective program to improve the effectiveness of R&D. If you have any suggestions as to how to improve or change the recommendations, please feel free to call on me. In order to maintain our R&D schedule it is necessary for us to brief the Executive Director concerning our recommendations by the 17th of September and would appreciate

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your assistance in making it a joint presentation. This means that and **REED** personnel should have a dry run briefing for us by 15 September 1970.

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**Chief, Research & Engineering Division,
NPIC/TSG**

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